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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,766	11/02/2001	Antti Ruha	872.0100.U1(US)	7390
29683 7590 05/07/2009 HARRINGTON & SMITH, PC 4 RESEARCH DRIVE, Suite 202 SHELTON, CT 06484-6212			EXAMINER TRAN, PABLO N	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 05/07/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/005,766	Applicant(s) RUHA ET AL.	
	Examiner Pablo N. Tran	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 25-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-14,17-24,39,40 and 43-51 is/are rejected.
- 7) ☒ Claim(s) 3-4, 15-16, and 41-42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5-14, 17-24, 39-40, and 43-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US Pat No 6,346,832) in view of Chun et al. (hereinafter "Chun", US Pat No 6,294,933).

As per claims 1, 5-6, 13, 17, and 23, 39, and 43-44, Young disclosed a multi-mode Input/Output circuit for transmitting and receiving data between integrated circuits wherein each IC having at least one of transmitter circuitry (fig. 1/no. 10) or receiver circuitry (fig. 1/no. 12), the transmitter circuitry configured to send data to another IC and the receiver circuitry configured to receive data from another IC, and wherein the I/O circuit being construct with CMOS-based transistors that are selectively interconnected together by switches to operate as single-ended, current or voltage mode links, and as a single differential, current or voltage mode link (fig. 1, fig. 3, col. 2/ln. 8-43, col. 4/ln. 25-col. 5/ln. 17).

Young does not explicitly disclosed that the I/O circuit comprising switches to operate as two single-ended signaling. However, Chun taught such signaling (fig. 1,

abstract, also see foreign search report). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention for Young to utilize such signaling method, as taught by Chun, in order provide a flexible interface signaling circuitry with reduce power consumption and cost.

As per claims 2, 14, and 40, the modified communication apparatus of Young and Chun further disclosed the transmitter is configured to send data to the receiver in another IC over a first conductor and the receiver circuitry is configured to receive data from the transmitter in another IC over a second conductor of the pair of adjacent disposed conductors (see Young, col. 3/ln. 38-41).

As per claims 7, 18, and 45, the modified communication apparatus of Young and Chun further disclosed single-ended current link mode (see Young, claim 6).

As per claims 8, 19 and 46, the modified communication apparatus of Young and Chun further disclosed a single differential voltage mode with single-ended input drive (see Young, fig. 1, fig. 3, see Chun, fig. 1).

As per claims 9, 20, and 47, the modified communication apparatus of Young and Chun further disclosed single differential voltage mode with differential input drive (see Young, fig. 1, fig. 3, see Chun, fig. 1).

As per claims 10, 21, and 48, the modified communication apparatus of Young and Chun further disclosed single differential current mode with single-ended input drive (see Young, fig. 1, fig. 3, see Chun, fig. 1).

As per claims 11, 22, and 49, the modified communication apparatus of Young and Chun further disclosed single differential current mode with differential input drive (see Young, fig. 1, fig. 3, see Chun, fig. 1).

As per claims 12, 24, and 50, the modified communication apparatus of Young and Chun further disclosed switches are provided to convert said I/O into either transmitter or receiver circuitry (see Young, fig. 1, fig. 3, see Chun, fig. 1).

3. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over the modified communication apparatus of Young and Chun and further in view of Pena-Finol et al. (5,832,370).

As per claim 51, the modified communication apparatus of Young and Chun does not specifically teaches that the IC comprises of RF and where at least one of said IC is a base-band IC. However, Pena-Finol et al. teaches such IC (fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art to provide such RF IC, as taught by Pena-Finol et al. to the modified communication apparatus of Young and Chun in order to provide a compact-cost effective communication apparatus that facilitates communication without interference.

Allowable Subject Matter

4. Claims 3-4, 15-16, and 41-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (571)272-7898. The examiner normal hours are 9:30 -5:00 (Monday-Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.
6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) System. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-directauspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 27, 2009

/Pablo N Tran/

Primary Examiner, Art Unit 2618